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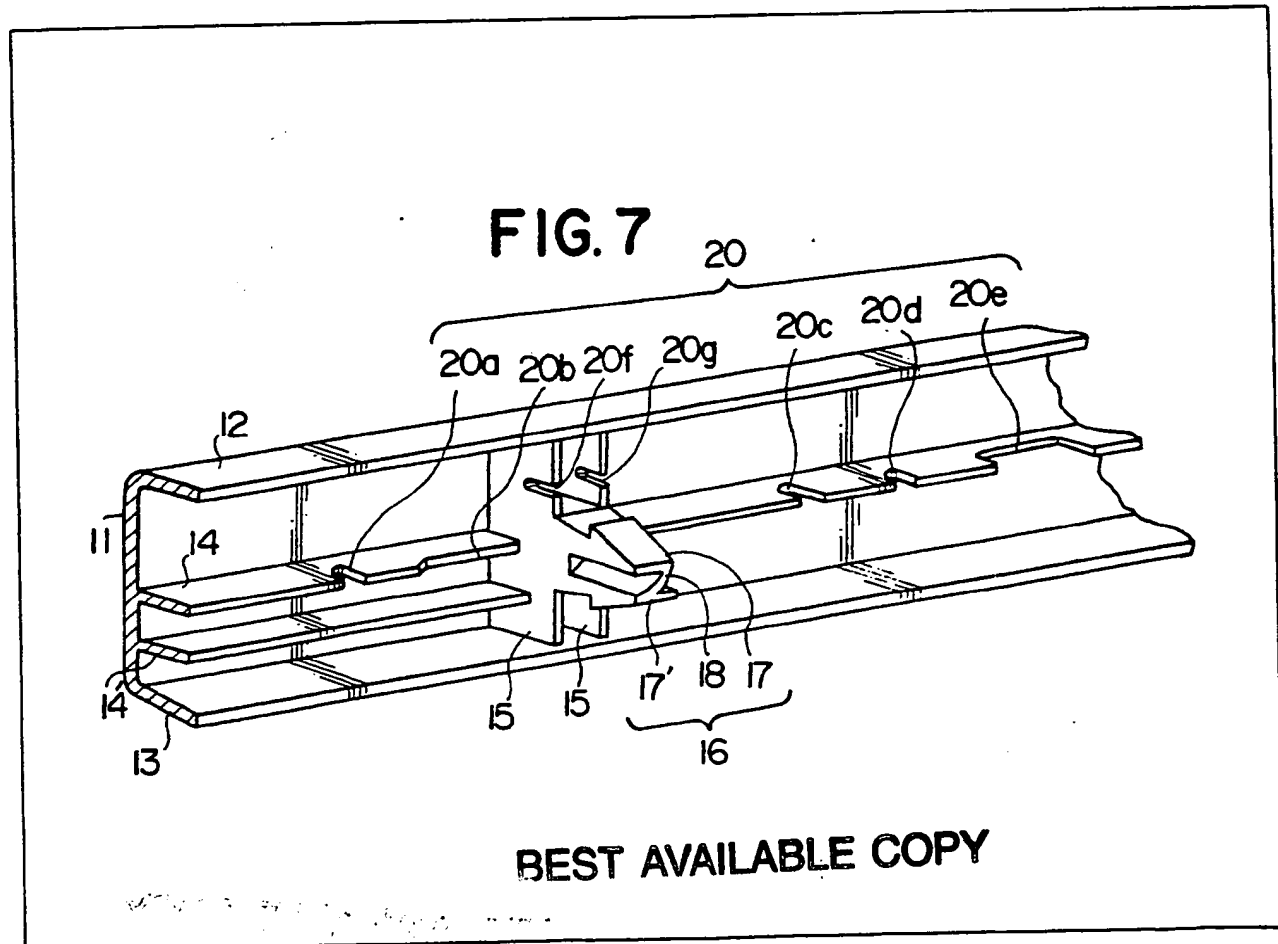
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(54) Vehicle bumper guard mold-
ing

(57) The molding has a base wall
(11) horizontal and vertical rein-

forcement ribs (14, 15) protruding from the inner face of the base wall (11) and crossing each other, and a plurality of connectors (16) projecting from the reinforcement ribs (14, 15) for engagement with apertures in the bumper. At least one of the ribs (14, 15) is formed with recesses 20 arranged at intervals so that a striking force applied to the bumper guard molding for striking the connectors (16) through the apertures in the bumper during assembly is not distributed longitudinally of the rib portion (14; 15).

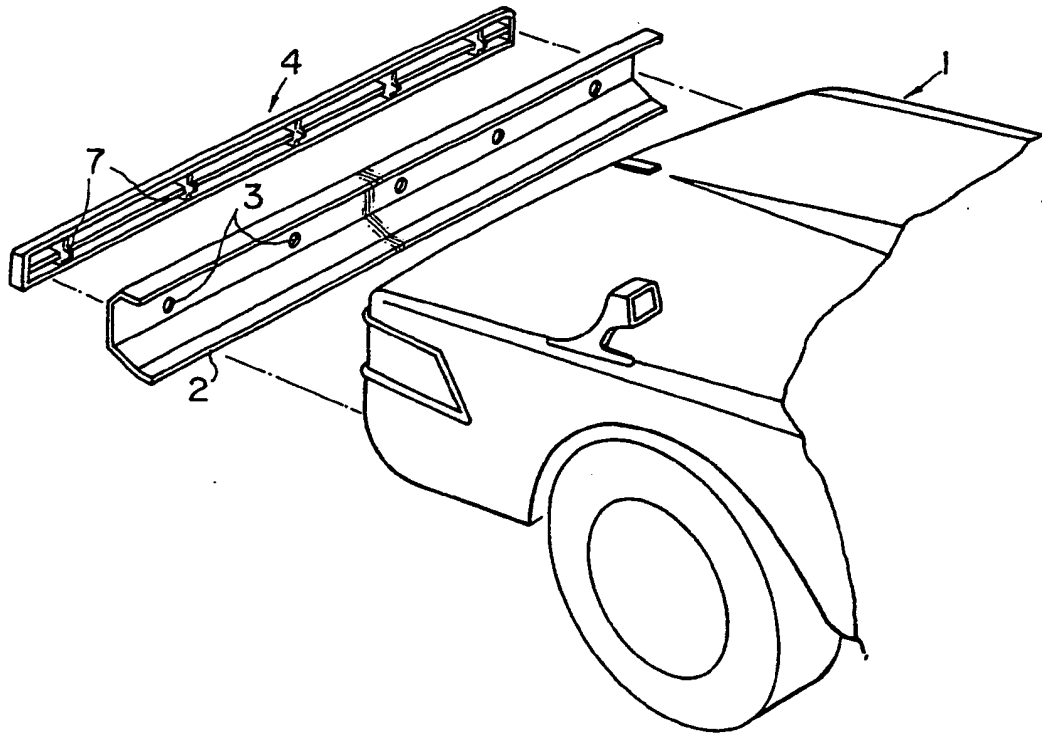


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FIG. 1

PRIOR ART

**FIG. 2**

PRIOR ART

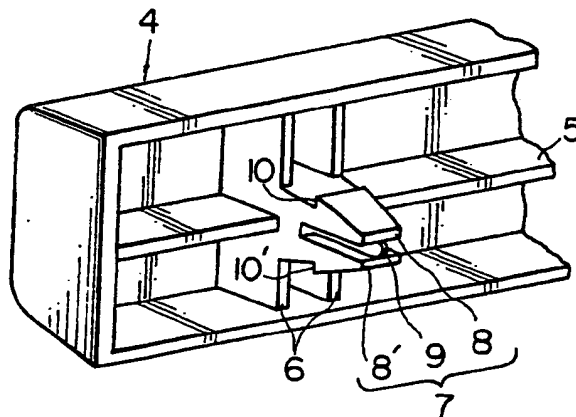


FIG.3
PRIOR ART

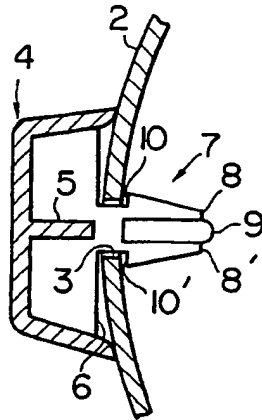


FIG.4
PRIOR ART

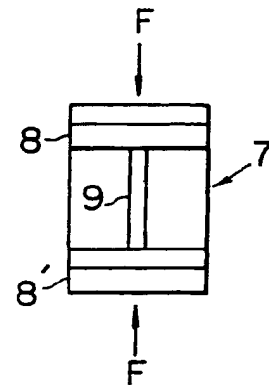
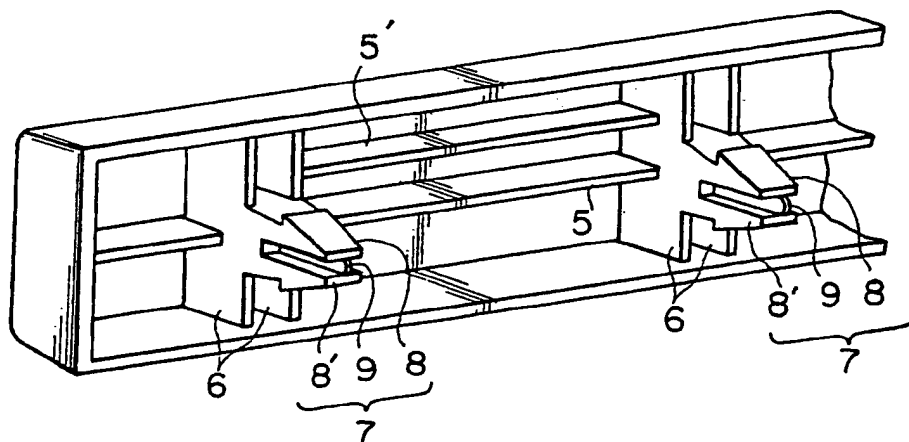


FIG.5
PRIOR ART



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FIG. 6A PRIOR ART

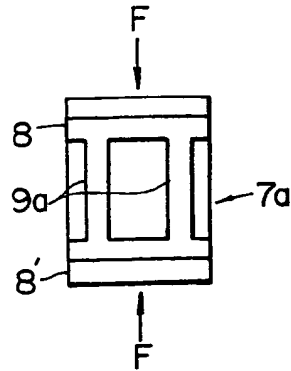


FIG. 6B PRIOR ART

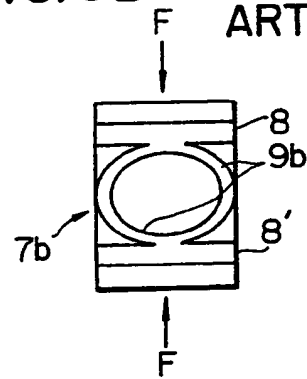


FIG. 7

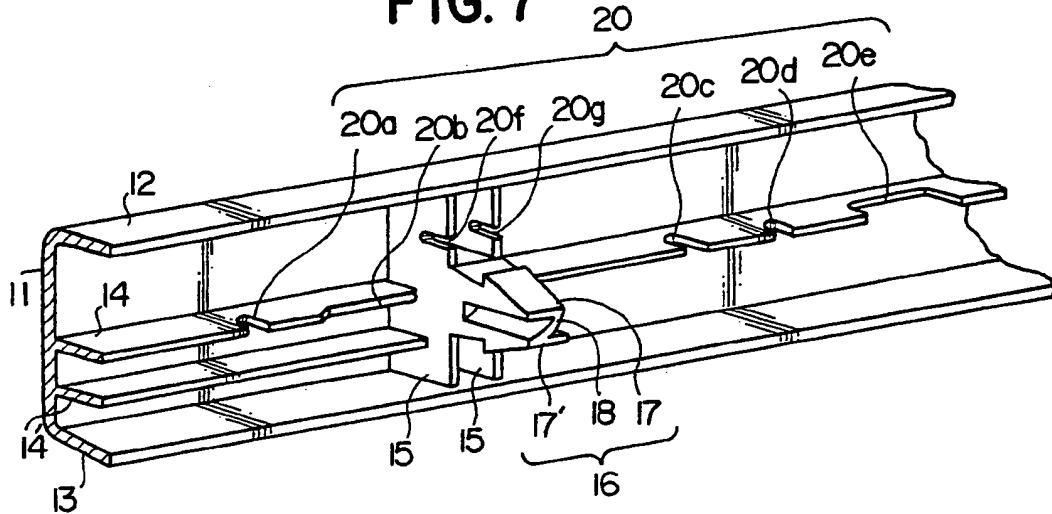


FIG. 8

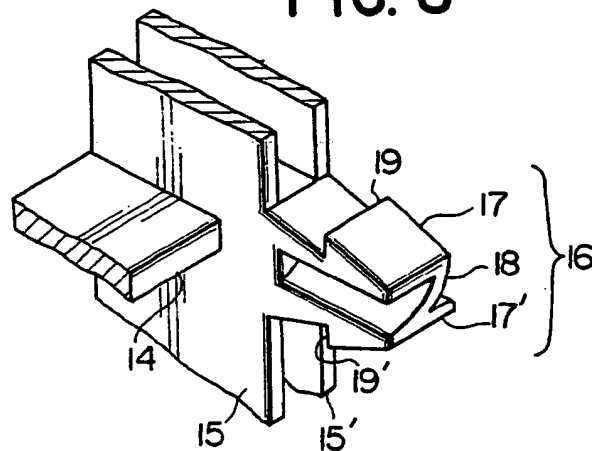


FIG. 9A

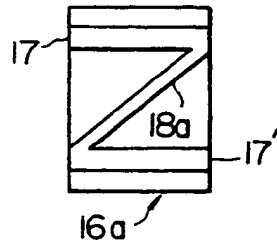


FIG. 9B

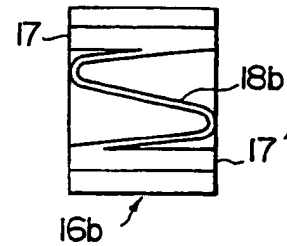


FIG. 9C

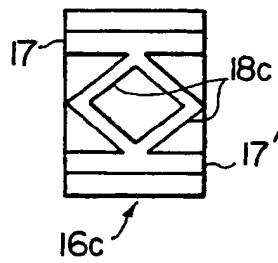


FIG. 9D

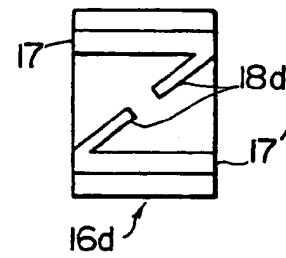
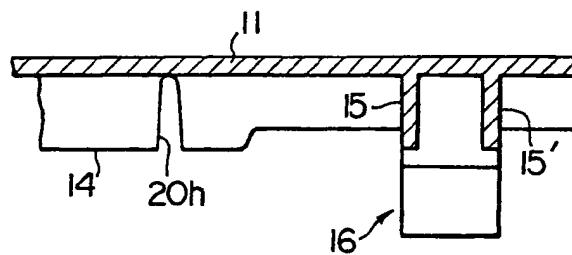


FIG. 10



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FIG. 11

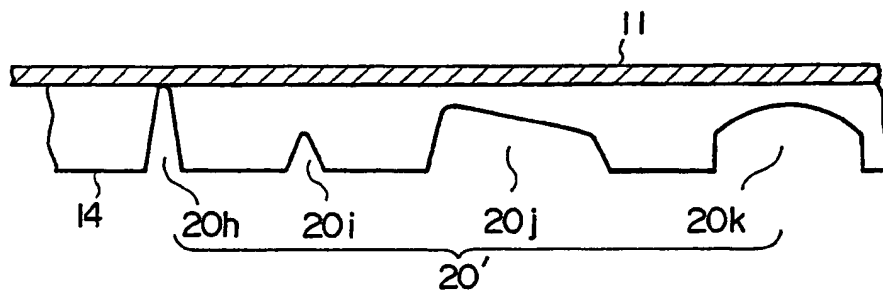


FIG. 12A

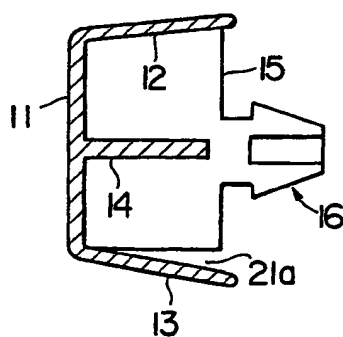


FIG. 12B

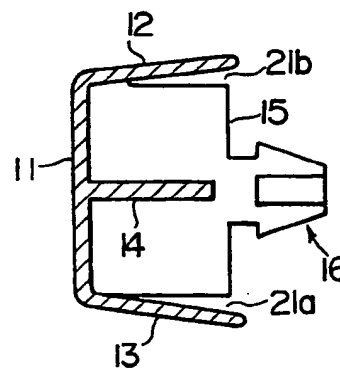
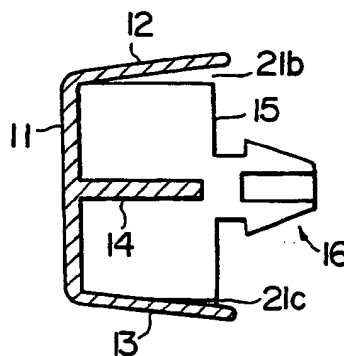


FIG. 12C



SPECIFICATION

Bumper guard molding

- 5 The present invention relates to a bumper guard molding for attachment to a bumper of an automotive vehicle.

- In accordance with the present invention, there is provided a bumper guard molding for attachment to a bumper formed with an aperture, comprising a horizontally elongated base wall portion having a vertical inner face, at least two reinforcement rib portions projecting substantially perpendicularly from the inner face of the base wall portion and longitudinally extending in crossing relationship to each other, and a connector projecting from the rib portions away from the inner face of the base wall portion and shaped for engagement with the bumper through the aperture formed in the bumper, at least one of the rib portions being formed with a plurality of recesses which are located at intervals longitudinally of the rib portion and which are open away from the inner face of the base wall portion.

- The connector forming part of a bumper guard molding thus provided in accordance with the present invention may comprise a pair of wedge portions which are spaced apart substantially in parallel from each other and at least one intermediate wall portion extending obliquely from one of the wedge portions toward the other wedge portion.

- Drawbacks of a prior-art bumper guard moulding and detailed features and advantages of a bumper guard molding according to the present invention will be understood clearly from the following description taken in conjunction with the accompanying drawings in which like reference numerals designate similar or corresponding members and portions and in which:

- Figure 1 is a fragmentary perspective view showing part of an automotive vehicle provided with a prior-art bumper and bumper guard molding;

- Figure 2 is a fragmentary perspective view showing a bumper guard molding forming part of the bumper and bumper-guard molding assembly of the vehicle illustrated in Fig. 1, the bumper guard molding being viewed from the rear side of the molding;

- Figure 3 is a vertical sectional view of part of the bumper and bumper guard molding assembly including the bumper guard molding illustrated in Fig. 2;

- Figure 4 is a rear end view of a connector forming part of the bumper guard molding illustrated in Fig. 2;

- Figure 5 is a view similar to Fig. 2 but showing a known modification of the bumper guard molding illustrated in Fig. 4;

- Figures 6A and 6B are rear end views of modifications of the connector illustrated in

Fig. 4;

- Figure 7 is a fragmentary perspective view showing an embodiment of a bumper guard molding according to the present invention, the bumper guard molding being viewed from the rear or inner side of the molding;

- Figure 8 is a fragmentary perspective view showing, to an enlarged scale, a connector forming part of the bumper guard molding illustrated in Fig. 7;

- Figures 9A, 9B, 9C and 9D are end views of modifications of the connector illustrated in Fig. 8;

- Figure 10 is a fragmentary plan view showing, partially in horizontal section, a modification of a horizontal reinforcement rib portion forming part of the bumper guard molding illustrated in Fig. 7;

- Figure 11 is a view similar to Fig. 10 but showing another modification of the horizontal reinforcement rib portion of the bumper guard molding illustrated in Fig. 7; and

- Figures 12A, 12B and 12C are cross sectional views of modifications of the bumper guard molding illustrated in Fig. 7.

- An automotive vehicle having a bumper at the front or rear end, or at each of the front and rear ends, of the vehicle uses a bumper guard molding for protecting the bumper from direct shocks and impacts thereto and further for decorative purposes. In Fig. 1 of the drawings is shown a representative example of such an automotive vehicle, which is generally designated by reference numeral 1. The vehicle 1 has a front bumper 2 attached to a lateral front structural member of the body structure of the vehicle 1. The front bumper 2 is elongated in a lateral direction of the vehicle body structure and is formed with a number of apertures 3 which are located at intervals therebetween longitudinally of the bumper 2. A bumper guard molding 4 elongated in parallel with the bumper 2 is assembled to the front face of the bumper 2 through these apertures 3 in the bumper 2. The bumper 2 and the bumper guard molding 4 thus assembled together constitutes a known bumper and bumper guard molding assembly. The bumper guard molding 4 is usually constructed of a synthetic resin.

- As will be seen more clearly from Figs. 2 and 3 of the drawings, the bumper guard molding 4 of the prior-art bumper and bumper guard molding assembly has a generally trough-shaped construction open toward the front face of the bumper 2 and has a horizontal reinforcement rib 5 and vertical reinforcement ribs 6. The horizontal reinforcement rib 5 projects toward the front face of the bumper 2 and extends longitudinally of the bumper guard molding 4 between the opposite side walls of the molding 4. On the other hand, the vertical reinforcement ribs 6 project toward the front face of the bumper 2 and vertically extend between the upper and

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lower walls of the bumper guard molding 4 and in perpendicularly crossing relationship to the horizontal reinforcement rib 5.

The bumper guard molding 4 of the prior-art bumper and bumper-guard molding assembly further has a plurality of connectors 7 providing retaining engagement between the bumper 2 and the bumper guard molding 4 through the apertures 3 in the bumper 2 as shown in Fig. 1. As illustrated to an enlarged scale in Figs. 2 and 3, each of the connectors 7 projects rearwardly from crossing wall portions of the horizontal and vertical reinforcement ribs 5 and 6 and is composed largely of a pair of wedge portions 8 and 8' which are spaced from each other and an intermediate wall portion 9 extending straight between the wedge portions 8 and 8' as will be better seen from Fig. 4. The intermediate wall portion 9 lends itself to adding a certain degree of rigidity to each of the wedge portions 8 and 8' against forces which may be exerted on the wedge portions 8 and 8' in directions indicated by arrows F in Fig. 4 while allowing the wedge portions 8 and 8' to elastically deform toward each other to a limited degree. The wedge portions 8 and 8' have locking faces 10 and 10' at the front ends thereof.

The bumper guard molding 4 thus constructed has some variations one of which is shown in Fig. 5 of the drawings. The bumper guard molding 4 illustrated in Fig. 5 has an additional horizontal reinforcement rib 5' extending between neighbouring two of the vertical reinforcement ribs 6 in parallel with the main horizontal reinforcement rib 5. The additional horizontal reinforcement rib 5' gives rise to an increase in the rigidity of the bumper guard molding 4 as a whole. Furthermore, the connector 7 having the configuration shown in Figs. 2 to 4 has some variations, two of which are shown in Figs. 6A and 6B, respectively. In the connector configuration illustrated in Fig. 6A, wedge portions 8 and 8' of a connector 7a are connected together by a pair of intermediate wall portions 9a extending straight between the wedge portions 8 and 8'. On the other hand, a connector 7b illustrated in Fig. 6B has a pair semi-cylindrical intermediate wall portions 9b radially protruding away from each other and extending between a pair of wedge portions 8 and 8'.

The bumper guard molding 4 having the construction hereinbefore described is assembled on the bumper 2 with the individual connectors 7 rearwardly passed through the apertures 3 in the bumper 2 so that the upper and lower walls of the molding 4 are held in close contact with the front face of the bumper 2. The locking faces 10 and 10' of the wedge portions 8 and 8' of each of, for example, the connectors 7 are held in close contact with the rear face of the bumper 2 as will be seen from Fig. 3. The bumper guard molding 4 is assembled on the bumper 2 by

striking the bumper guard molding 4 on its front face with a hammer or the like for forcing the wedge portions 8 and 8' of each of the connectors 7 to pass rearwardly through each of the apertures 3 in the bumper 2 until the locking faces 10 of the wedge portions 8 and 8' are brought into contact with the rear face of the bumper 2.

The bumper guard molding 4 of the prior-art bumper and bumper-guard molding assembly of the nature hereinbefore described has a drawback in that the driving forces applied by a hammer or the like to the bumper guard molding 4 for forcing the connectors 7 through the apertures 3 in the bumper 2 during assemblage of the molding 4 to the bumper 2 tend to be distributed to the horizontal and vertical reinforcement ribs 5 and 6 and are not effectively concentrated on connector carrying portions of the molding 4. This is accounted for by the reasons that each of the reinforcement ribs 5 and 6 is shaped to have a uniform degree of rigidity throughout the longitudinal extent thereof, that the intermediate wall portion 9 of each of the connectors 7 is not shaped to provide an adequate degree of elasticity between the wedge portions 8 and 8', and that the vertical reinforcement ribs 6 integral with the connectors 7 are integral not only with the front wall portion but also with the upper and lower wall portions of the bumper guard molding 4.

To have the bumper guard molding 4 assembled on the bumper 2, therefore, it has been required to apply excessive striking forces to the bumper guard molding 4 for enabling the individual connectors 7 of the molding 4 to completely engage the bumper 2 through the apertures 3 in the bumper 2. Striking the bumper guard molding 4 violently, produces scratches on the front face of the molding 4. If the bumper guard molding 4 is not struck against the bumper 2 with such excessive forces, the connectors 7 or at least some of the connectors 7 of the bumper guard molding 4, may fail to engage the bumper 2 with certainty. When this happens, the bumper guard molding 4 in its entirety curves or undulates longitudinally of the molding 4 or produces fissures and cracks therein which seriously impair the external appearance of the vehicle. The bumper guard molding 4 improperly attached to the bumper 2 may further cause the production of booming noises resonant with the vibrations transmitted from the vehicle body structure to the bumper guard molding 4 through the bumper 2 during operation of the vehicle. The present invention contemplates the provision of useful solutions to these problems which have thus far been encountered in prior-art bumper and bumper-guard assemblies of the described general nature.

It is, accordingly, an important object of the present invention to provide a bumper guard

5 molding having horizontal and vertical reinforcement ribs each shaped to permit the bumper guard molding to transmit localized striking forces to the connectors of the molding when the bumper guard molding is to be assembled to a bumper of an automotive vehicle.

10 It is another important object of the present invention to provide a bumper guard molding having connectors each including an intermediate wall portion or portions shaped to provide an adequate degree of elasticity between the wedge portions between which the intermediate wall portion or each of the intermediate wall portions is formed.

15 It is still another important object of the present invention to provide a bumper guard molding having vertical reinforcement ribs each of which is formed separately of at least one of the upper and lower wall portions of the bumper guard molding so as to prevent the transmission of a striking force from each of the vertical reinforcement ribs to the upper or lower wall portions or both of the upper and lower wall portions of the molding.

20 Referring to Fig. 7 of the drawings, a bumper guard molding embodying the present invention is constructed of a synthetic resin or any other elastic material and comprises an elongated base wall portion 11 having an elongated vertical cross section, and horizontal upper and lower wall portions 12 and 13 which are perpendicularly bent from the upper and lower ends, respectively, of the base wall portion 11. The upper and lower wall portions 12 and 13 are vertically spaced substantially in parallel from each other and longitudinally extend along the base wall portion 11 throughout its length.

25 The bumper guard molding shown in Fig. 7 further comprises main and auxiliary horizontal reinforcement rib portions 14 and 14' projecting perpendicularly from the inner face of the base wall portion 11 in directions parallel with the upper and lower wall portions 12 and 13 and bent from the base wall portion 11. The main horizontal reinforcement rib portion 14 is herein assumed, by way of example, as extending longitudinally in parallel with the upper and lower wall portions 12 and 13 throughout the length of the bumper guard molding. On the other hand, the auxiliary horizontal reinforcement rib portion 14' is assumed, also by way of example, as extending longitudinally in parallel with the upper and lower wall portions 11 and 12 along a limited portion of the total length of the bumper guard molding.

30 The bumper guard molding embodying the present invention further comprises some pairs of vertical reinforcement rib portions including, as shown, a pair of vertical reinforcement rib portions 15 and 15' projecting perpendicularly from the inner face of the base wall portion 11 in directions parallel with

the directions in which the horizontal reinforcement rib portions 14 and 14' project from the base wall portion 11. The vertical reinforcement rib portions 15 and 15' extend vertically between the upper and lower wall portions 12 and 13 in perpendicularly crossing relationship to the main horizontal rib portion 14 and are horizontally spaced in parallel from each other. The auxiliary horizontal reinforcement rib portion 14' is shown as having one lengthwise end at the outer face of one of the vertical reinforcement rib portions 15 and 15'.

35 Though not shown in the drawings, the main horizontal reinforcement rib portion 14 is thus perpendicularly crossed by the plural pairs of vertical reinforcement rib portions 15 and 15'. These pairs of rib portions 15 and 15' are located at intervals longitudinally of the bumper guard molding.

40 A connector 16 projects from the vertical reinforcement rib portions 15 and 15' perpendicularly away from the inner face of the base wall portion 11. As will be seen more clearly from Fig. 8, the connector 16 has a generally Z-shaped cross section and is composed of a pair of wedge portions 17 and 17' vertically spaced in parallel from each other and an intermediate wall portion extending, obliquely in curved form, from one side of one of the wedge portions 17 and 17' to the opposite side of the other wedge portions. The wedge portions 17 and 17' respectively have flat camming faces slanting toward each other toward the leading ends of the wedge portions and locking faces 19 and 19' at the opposite ends of the wedge portions. The locking faces 19 and 19' are spaced substantially in parallel from the edges of the vertical reinforcement rib portions 15 and 15' as shown.

45 The cross sectional configuration of the intermediate wall portion 18 of the connector 16 thus constructed may be modified in numerous manners if desired. Figs. 9A, 9B, 9C and 9D of the drawings show connectors 16a, 16b, 16c and 16d, respectively, having such modifications of the intermediate wall portion 18.

50 In Fig. 9A, the connector 16a is shown having a Z-shaped cross-section similar to the connector 16 of Fig. 8 but comprising, in addition to wedge portions 17 and 17', an intermediate wall portion 18a extending obliquely straight from one side of one of the wedge portions 17 and 17' to the opposite side of the other wedge portion. The connector 16b shown in Fig. 9B comprises, in addition to wedge portions 17 and 17', an intermediate wall portion 18b having a generally S-shaped cross-section and extending from one side of one of the wedge portions 17 and 17' to the opposite sides of the other wedge portion through two turnups.

55 While each of the connectors shown in

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Figs. 9A and 9B as well as Fig. 8 has a single intermediate wall portion, each of the connectors 16c and 16d illustrated in Figs. 9C and 9D, respectively has a pair of intermediate wall portions. Thus, the connector 16c shown in Fig. 9C comprises, in addition to wedge portions 17 and 17', a pair of intermediate wall portions 18c each extending in lying V-shaped form from one of the wedge portions 17 and 17' to the other. The two intermediate wedge portions 18c are thus each bent at a sharp angle away from each other intermediate the wedge portions 17 and 17' and have in combination a rectangular or generally parallelogrammic cross section. On the other hand, the connector 16d illustrated in Fig. 9D has a generally Z-shaped cross section but comprises, in addition to the wedge portions 17 and 17', a pair of intermediate wall portions 18d obliquely projecting toward each other one from one side of one of the wedge portions 17 and 17' and the other from the other side of the other wedge portion and spaced from each other.

Turning back to Fig. 7 of the drawings, the bumper guard molding embodying the present invention features, *inter alia*, the formation of recesses 20 in, for example, each of the main horizontal reinforcement ribs 14 and the vertical reinforcement rib portions 15 and 15'. These recesses 20 include recesses 20a, 20b, 20c, 20d and 20e formed in the main horizontal reinforcement rib portion 14 and the recesses 20f and 20g formed in the vertical reinforcement rib portions 15 and 15', respectively, as shown. Each of the recesses 20 open away from the inner face of the base wall portion 11 and terminates toward the inner face of the base wall portion 11. Some of the recesses 20 such as the recesses 20a, 20c and 20d in the horizontal reinforcement rib portion 14 and the recesses 20f and 20g in the vertical reinforcement rib portions 15 and 15', respectively, are elongated perpendicularly to the inner face of the base wall portion 11. The others of the recesses 20 such as the recesses 20b and 20e in the horizontal reinforcement rib portion 14 are elongated longitudinally of the rib portion 14.

The bumper guard molding thus constructed is assembled on an ordinary bumper of an automotive vehicle such as the front bumper 2 of the vehicle 1 illustrated in Fig. 1. For this purpose, each of the connectors 16 (or the modifications thereof as illustrated in Figs. 9A to 9D) are rearwardly struck through the apertures 3 in the bumper 2 by applying rearward impact on the front face of the bumper guard molding by the use of, for example, a hammer. Referring to Fig. 7, a striking force thus exerted rearwardly on the outer face of the base wall portion 11 of the bumper guard molding is first transmitted from the base wall portion to each of the

horizontal reinforcement rib portions 14 and 14' and vertical reinforcement rib portions 15 and 15' where the rib portions 14 and 14' are crossed by the rib portions 15 and 15'. The striking force transmitted, for example, to the main horizontal rib portion 14 is prevented from being uselessly distributed longitudinally of the rib portion 14 due to the presence of the recesses 20a, 20b, 20c, 20d, 20e in the rib portion 14. Similarly, the striking force transmitted to the vertical reinforcement ribs 15 and 15' is prevented from being uselessly distributed longitudinally of the rib portions 15 and 15' due to the presence of the recesses 20f and 20g in the rib portions 15 and 15', respectively. In the case of the horizontal reinforcement rib portion 14 in particular, the striking force transmitted from the base wall portion 11 thereto is successively hindered from being distributed beyond the two parallel recesses 20c and 20d each elongated perpendicularly to the inner face of the base wall portion 11. The striking force which may still be permitted to be transmitted across these recesses 20c and 20d is further hindered from being transmitted beyond the recess 20e elongated longitudinally of the rib portion 14. The result is that the striking force transmitted from the base wall portion 11 to each of the horizontal reinforcement rib portions 14 and 14' and the vertical reinforcement rib portions 15 and 15' is thus transmitted effectively and in a localised fashion to each of the connectors 16.

The striking force thus transmitted to each of the connectors 16 each having its wedge portions 17 and 17' partially inserted into each of the apertures 3 in the front bumper 2 urges the wedge portions 17 and 17' to elastically deform toward each other against the rigidity of the intermediate wall portion 18. The intermediate wall portion 18 of the connector 16 has a certain degree of elasticity as well as the rigidity thereof and thus permits the wedge portions 17 and 17' to elastically deform toward each other and to advance rearwardly through the aperture 3 in the bumper 2 without buckling. When the wedge portions 17 and 17' are completely passed through the aperture 3 in the bumper 2, the wedge portions 17 and 17' are allowed to restore their respective initial positions with respect to the intermediate wall portion 18 and have their respective locking faces 19 and 19' held in close contact with the inner face of the bumper 2. Thus, the bumper guard molding can be attached correctly and with certainty to the bumper 2 even if the apertures 3 formed in the bumper 2 might have irregularities in the accuracy of dimensions.

Fig. 10 of the drawings shows part of a modification of the main horizontal reinforcement rib portion 14 in the embodiment of the bumper guard molding hereinbefore described

with reference to Figs. 7 and 8. In the horizontal reinforcement rib portion 14 herein shown, there is formed a recess 20h which is elongated perpendicularly to the inner face of the base wall portion 11 and terminates at the inner face of the wall portion 11. The recess 20h thus formed in the horizontal reinforcement rib portion 14 is, in the first place, useful for preventing undulating deformation of the bumper guard molding as a whole by taking up the lengthwise elongation or contraction of the rib portion 14 due to seasonal changes of the atmospheric temperature. During a vehicle collision, furthermore, a localized impact perpendicularly exerted on the outer face of the base wall portion 11 of the bumper guard molding and forcing the wall portion 11 to locally warp toward the bumper is dampened by partial deformation of the rib portion on both sides of the recess 20h and is prevented from being transmitted longitudinally far away from the recess 20h. This contributes to minimizing the impact acting on each of the connectors 16 of the bumper guard molding during a collision of the vehicle.

Fig. 11 of the drawings illustrates another modification of the horizontal reinforcement rib 14 in the embodiment of the bumper guard molding shown in Fig. 7. The horizontal reinforcement rib portion 14 herein illustrated is formed with recesses 20' including a recess 20h shaped as described above, a recess 20i in the form of a V-shaped notch terminating halfway toward the inner face of the base wall portion 11, a generally trapezoidal recess 20j, and an arch-shaped recess 20k. The horizontal reinforcement rib portion 14 formed with the recesses 20i, 20j and 20k is also conducive to minimizing the distribution of an impact in a longitudinal direction of the rib portion 14 while giving rise to an increase in the rigidity of the bumper guard molding as a whole.

Each of the recesses shaped similarly to the recesses 20h, 20i, 20j and 20k in the horizontal reinforcement rib portions 14 illustrated in Figs. 10 and 11 may be formed also in each of the vertical reinforcement rib portions 15 and 15' if desired. Furthermore, each of the vertical reinforcement rib portions 15 and 15' may be formed with an indentation at one or each of the upper and lower ends thereof as illustrated in each of Figs. 12A, 12B and 12c of the drawings.

In Fig. 12A, a vertical reinforcement rib portion 15 is shown formed with an indentation 21a at the lower end thereof. The indentation 21a is elongated perpendicularly to the inner face of the base wall portion 11 and terminates at the inner face of the wall portion 11 so that the rib portion 15 is separate in its entirety from the lower wall portion 13 and integral with the upper wall portion 12. In Fig. 12B, a vertical reinforcement rib portion

15 is shown formed with indentations 21a and 21b at the lower and upper ends, respectively, of the rib portion. Each of the indentations 21a and 21b are elongated perpendicularly to the inner face of the base wall portion 11 and terminates at the inner face of the wall portion 11 so that the rib portion 15 is in its entirety separate from the upper and lower wall portions 12 and 13. In Fig. 12C, a vertical reinforcement rib portion 15 is shown formed with indentations 21b and 21c at the upper and lower ends, respectively, of the rib portion. The upper indentation 21b is elongated perpendicularly to the inner face of the base wall portion 11 and terminates at the inner face of the wall portion 11 so that the rib portion 15 is in its entirety separate from the upper wall portion 12. On the other hand, the indentation 21c formed at the lower end of the rib portion 15 is elongated perpendicularly to the inner face of the base wall portion 11 and terminates halfway toward the inner face of the base wall portion. The rib portion 15 shown in Fig. 12C is thus partially separate from and partially integral with the lower wall portion 13. The indentation 21a or each of the indentations 21a and 21b or the indentations 21b and 21c thus formed in the vertical reinforcement rib portion 15 serves not only for reducing the distribution of an impact in a longitudinal direction of the rib portion 15 but for preventing the impact from being transmitted from the rib portion 15 to one or each of the upper and lower wall portions 12 and 13.

While it has been assumed that the horizontal reinforcement rib portion 14 is formed with a combination of recesses differing in shape from one another, a horizontal reinforcement rib portion as well as a vertical reinforcement rib portion forming part of a bumper guard molding according to the present invention may be formed with a combination of recesses of one and the same shape.

110 CLAIMS

1. A bumper guard molding for attachment to a bumper formed with an aperture, comprising:
 - 115 a horizontally elongated base wall portion having a vertical inner face,
 - at least two reinforcement rib portions projecting substantially perpendicularly from the inner face of the base wall portion and extending in crossing relationship to each other, and
 - 120 a connector projecting from the rib portions away from the inner face of said base wall portion and shaped for engagement with the bumper through the aperture formed in the bumper, at least one of said rib portions being formed with a plurality of recesses which are located at intervals longitudinally of the rib portion and are open away from the inner face of said base wall portion.
 - 130 2. A bumper guard molding as set forth in

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- claim 1, further comprising upper and lower wall portions extending longitudinally along said base wall portion and vertically spaced substantially in parallel from each other, said
- 5 reinforcement rib portions consisting of a horizontal reinforcement rib portion extending longitudinally substantially in parallel with said upper and lower wall portions and at least one pair of vertical reinforcement rib
- 10 portions horizontally spaced substantially in parallel from each other and extending intermediate said upper and lower wall portions, said connector projecting from said vertical reinforcement rib portions where the vertical
- 15 reinforcement rib portions are crossed by said horizontal reinforcement rib portion, said recesses being formed in each of said horizontal reinforcement rib portion and said vertical reinforcement rib portions.
- 20 3. A bumper guard molding as set forth in claim 2, in which at least one of said vertical reinforcement ribs is formed with an indentation at at least one of the upper and lower ends thereof, the indentation being elongated
- 25 substantially perpendicularly to the inner face of said base wall portion.
4. A bumper guard molding as set forth in claim 3, in which said indentation terminates at the inner face of said base wall portion.
- 30 5. A bumper guard molding as set forth in claim 3, in which said indentation terminates halfway toward the inner face of said base wall portion.
6. A bumper guard molding as set forth in
- 35 claim 2, in which at least one of said vertical reinforcement rib portions is formed with indentations at the upper and lower ends, respectively, thereof, said indentations being elongated substantially perpendicularly to the
- 40 inner face of said base wall portion.
7. A bumper guard molding as set forth in claim 6, in which both of said indentations terminate at the inner face of base wall portion.
- 45 8. A bumper guard molding as set forth in claim 6, in which one of said indentations terminates at the inner face of said base wall portion and the other of the indentations terminates halfway toward the inner face of
- 50 the base wall portion.
9. A bumper guard molding as set forth in any one of claims 1 to 6, in which said recesses include at least one recess which is elongated perpendicularly to the inner face of
- 55 said base wall portion.
10. A bumper guard molding as set forth in any one of claims 1 to 6, in which said recesses include at least one recess which is elongated longitudinally of the rib portion
- 60 formed with the recesses.
11. A bumper guard molding as set forth in any one of claims 1 to 6, in which said recesses include at least one recess which terminates at the inner face of said base wall

12. A bumper guard molding as set forth in any one of claims 1 to 6, in which said recesses include at least one recess which terminates halfway toward the inner face of
- 70 said base wall portion.
13. A bumper guard molding as set forth in any one of claims 1 to 6, in which said recesses include at least one recess which is in the form of a V-shaped notch.
- 75 14. A bumper guard molding as set forth in any one of claims 1 to 6, in which said recesses include at least one generally trapezoidal recess.
15. A bumper guard molding as set forth
- 80 in any one of claims 1 to 6, in which said recesses include at least one arch-shaped recess.
16. A bumper guard molding as set forth in any one of claims 1 to 6, in which said
- 85 connector comprises a pair of wedge portions which are spaced substantially in parallel from each other and at least one intermediate wall portion extending obliquely from one of the wedge portions toward the other wedge portion.
- 90 17. A bumper guard molding as set forth in claim 16, in which said intermediate wall portion extends between said wedge portions.
18. A bumper guard molding as set forth
- 95 in claim 17, in which said intermediate wall portion extends in curved form from one side of one of said wedge portions to the opposite side of the other wedge portion.
19. A bumper guard molding as set forth
- 100 in claim 17, in which said intermediate wall portion extends straight from one side of one of said wedge portions to the opposite side of the other wedge portion.
20. A bumper guard molding as set forth
- 105 in claim 17, in which said intermediate wall portion has a generally S-shaped cross section and extends from one side of one of said wedge portions to the opposite side of the other wedge portion through two turnups.
- 110 21. A bumper guard molding as set forth in claim 16, in which said intermediate wall portion constitutes one of a pair of intermediate wall portions extending from one of said wedge portions to the other and bent each at
- 115 a sharp angle away from each other intermediate between the wedge portions.
22. A bumper guard molding as set forth in claim 16, in which said intermediate wall portion constitutes one of a pair of intermediate wall portions obliquely projecting toward each other one from one side of one of the wedge portions and the other from the opposite side of the other wedge portion.
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